ABSTRACT

An electrically conductive oil mud meeting the fluid requirements for resistive logging tools and a method for preparing such mud is disclosed. The fluid has been optimized to deliver performance in a manner as similar to that of a traditional invert emulsion drilling fluid as is practical while still maintaining the required electrical conductivity for resistivity-based logging tools. This electrically conductive oil-based mud comprises a polar synthetic ester base and complimentary ester surfactants, one being more oil soluble, the other being more water soluble. The surfactants interact synergistically to provide dense packing of micelles at the palisade layer. This fluid is oil-wetting to solids, and in general behaves like a traditional oil mud.